

### Abstract of the Disclosure

A high performance switch fabric element and flexible link interconnection topologies and frame addressing techniques therefor are disclosed. The fabric element, which may be a 16 port ASIC with internal steerable interconnection among all ports. The fabric element ports each have a unique local routing table, thereby avoiding the need for a global routing table for ports as is provided in the prior art. This also permits addressing and routing from port to port within the fabric element without need for look-up references from off the fabric element, thereby contributing to speed. The fabric element can be used in multiples interconnected by unique link interconnection techniques including cascade, mesh, microstaging, and combinations thereof. These link interconnection techniques provide unique switch topologies that permit high performance switching chassis or network box having a significantly larger number of ports than is achievable with the prior art techniques.